

§103(a) as being unpatentable over M1 in view of M2 and further in view of Funk. The Examiner's rejections are respectfully traversed.

The present invention is a method for the production of alkyl aromatic hydrocarbons starting with a feedstream comprising olefins and paraffins. The Examiner has failed to acknowledge the importance of the olefin/paraffin feedstream. This stream is introduced into an isomerization unit which is configured to isomerize at least a portion of the linear olefins in the feedstream to branched olefins. The product stream from the isomerization unit comprises branched olefins and unreacted components of the feedstream, i.e., linear olefins and paraffins. This product stream is introduced into an alkylation unit along with aromatic hydrocarbons. The alkylation unit is configured to alkylate at least a portion of the aromatic hydrocarbons with at least a portion of the branched olefins in the product stream from the isomerization unit. The process produces alkyl aromatic hydrocarbons comprising a branched alkyl group which are later separated from unreacted components comprising olefins, paraffins and aromatic hydrocarbons. A portion of the paraffins and a portion of the olefins are separated and introduced into a dehydrogenation unit which is configured to dehydrogenate at least a portion of the paraffins to produce olefins. These newly produced olefins and the unreacted olefins are then introduced into the isomerization unit.

The Examiner correctly describes M1 as utilizing a paraffin feed to produce branched alkyl aromatic hydrocarbons by isomerizing the paraffins, dehydrogenating the branched paraffins, and alkylating the branched olefins made from the paraffins.

The Examiner correctly describes M2 as disclosing making branched alkyl aromatic hydrocarbons from a feed of linear olefins by isomerizing the linear olefins to produce branched olefins and then feeding them to an alkylation zone to produce the branched alkyl aromatic hydrocarbons.

Neither of these references describe a process for making branched alkyl aromatic hydrocarbons wherein the feedstream comprises a mixture of paraffins and olefins. This is an important aspect of the present invention which is not described, suggested, or divined from a reading of either one of the references. The only possible scheme suggested by M1 and M2 for using the processes of M1 and/or M2 to accomplish the result claimed herein utilizing a starting feedstream which comprises both paraffins and olefins would require that the olefins and paraffins be separated from each other, an operation which is very difficult, and then the paraffins would be treated according to the process of M1 and the olefins would be placed in an entirely different reaction setup to follow the process of M2. This would not only require the expensive step of separating the olefins from the paraffins but would also require two separate reactor lines before the alkylation reaction step.

The Examiner simply picks and chooses different steps from M1 and M2 to combine them together in an attempt to come up with the claimed invention. This attempt fails because neither reference describes or suggests combining the feeds from the two processes. The Examiner adds the process of M2 at the end of the process of M1. This can only be done utilizing hindsight after reading the present specification .

The Manual of Patent Examining Procedure requires in Section 2143.01 that in order to establish a prima facie case of obviousness, the Examiner must find in the prior art a suggestion or motivation to modify the cited references to come up with the claimed invention. The Examiner has made no attempt to specify the motivation or suggestion provided by the cited references. Indeed, there is none. The Manual of Patent Examining Procedure in Section 2143.01 III states:

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination."

Thus, the Examiner is required to find statements in the cited prior art which would provide the motivation or suggestion that the references be combined in the manner in which the Examiner would like them to be combined. This has not been done and the Applicants assert that it cannot be done because no such suggestion or motivation is present in either of the references.

Claims 26-37 all relate to an additional step involving adjusting the ratio of olefins to paraffins in the isomerization step of the claimed process. The Examiner combines M1 and M2 with Funk to state that it is obvious to adjust the ratio of paraffins to olefins in the claimed process. The Examiner admits that neither M1 nor M2 describes this feature. Funk does not describe this feature. Funk does not have an isomerization step. The cited passages of Funk describe adjusting the olefin to paraffin ratio in the alkylation unit. Obviously, this is not the same as the isomerization unit and the processes carried out in the two units are completely different. Thus, the Applicants assert that this combination of reference does not suggest even this specific feature which is recited in claims 26-37.

The Examiner appears to be saying that it is obvious to isomerize olefins with paraffins present. The Applicants assert that this is not obvious and that those of ordinary skill in the art did not utilize such a step as evidenced by the separate paraffin and olefin conversion processes to branched alkyl aromatic hydrocarbons of M1 and M2. This rejection simply involves figuring out how one could have thought of the claimed invention after seeing what the claimed invention actually is, i.e., reading the present specification. This rejection is based entirely on hindsight.

In view of the arguments described above, the Applicants assert that the rejections have been overcome and respectfully request an early notice of allowance.

Respectfully submitted,

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